Washington State Department of Transportation

The Hybrid Vehicle and Alternative Fuel Report

October 30, 2008

The fine print: This report is a digest of articles appearing in popular, business, and technical media referring to the impact of fuel costs and fuel efficiency on vehicle technology, development, and markets appearing during the second half of October, 2008. At the end of the report is a listing of all articles summarized, with hyperlinks to internet sources where available. Some hyperlinks may require free registration or paid subscriptions to access. The appearance of articles, products, opinions, humor (such as it is), and links in this summary does not constitute an endorsement of the same by the Washington State Department of Transportation. Photos and other artwork included in the report are either included with permission or are in the public domain. *The Hybrid Vehicle and Alternative Fuel Report* is compiled and edited by Thomas L. R. Smith, Ph. D., Economic Analysis Section, Budget and Financial Analysis Office of the Washington State Department of Transportation. Contact the editor by email at smithtm@wsdot.wa.gov or by telephone at (360) 705-7941. Contributions of articles and positive comments about *The Report* are welcome.

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HYBRIDS

Navistar unveiled a new diesel hybrid tractor for use in general freight and local delivery, Trailer-Body Builders' *Market Watch* reported. The vehicle should get a 20 to 25% reduction in fuel use for in-town deliveries, with 33% less hydrocarbon and 35% less nitrous oxide emissions. Meanwhile, Chrysler announced that it will stop production of the Aspen and Durango SUV hybrids that went into production in August. Chrysler is shutting down the plant that makes the vehicles and has no plans to produce the vehicles anywhere else (Wernle, 2008) according to *Automotive News*.

In Brown's continuing effort to go green, UPS will add *hydraulic* hybrids to its fleet of package delivery vehicles. The hydraulic hybrid uses compressed hydraulic fluid and a diesel engine as its energy sources. The seven hybrid trucks the company will purchase will become part of UPS's 1,600 vehicle green fleet (Transport Topics, 2008).

Ford is improving the dashboard fuel information system that it will install in new Ford and Mercury hybrids. The new system gives more information to the driver and is interactive. After testing, Ford removed some features because of safety. *The Wall Street Journal* says that after market fuel information systems are available for standard vehicles and have been shown to improve fuel efficiency (Dolan, 2008).

ALTERNATIVE FUELS

Exxon Mobil plans to open its very first biodiesel blending plant in Spokane in November (Ford, 2008), KOZE-AM radio reported. Deliveries of biodiesel will start from the plant in December. Chevron will also start providing biodiesel to Washington retailers soon. The drive is to meet Washington State law requiring 2% of diesel sold in the state to be biodiesel.

Tim Moran of *Automotive News* warns Mercedes sales staff to "Get ready for ribald jokes about standard-equipment urinals and emergency fill-ups when you explain to customers that they have a new fluid level to check" (2008). The new Mercedes clean diesel system requires owners to fill a reservoir with a urea mixture. The urea combines with nitrous oxide to create nitrogen and water. Many commercial truckers already deal with the urea additive. Urea, since you asked, is what you think it is. It is a major byproduct of organic metabolism, according to Answers.com. Urea has many uses, including as fertilizers and in polymer resins. Apparently, it was once used to brown pretzels. Yum.

Tight credit and low oil prices are putting a damper on alternative fuel programs, both *The New York Times* and National Public Radio report. Alternative energy companies are having difficulty getting financing and there seems little incentive to invest in these alternatives as fuel costs drop (Kraus, 2008). Imperium Renewables, a Washington State company that has been experiencing difficulties, has managed to get a new injection of cash from investors, but it's not enough to bring its expansion plans out of mothballs (Shogren, 2008).

Colbalt, a California biofuel company, is expanding its production of the biofuel called biobutanol, *Bulk Logistics Trends* (2008) released. In tough economic times, the company managed to buck the trend mentioned above and raised $25 million to turn nonfood agricultural material into fuel. What is biobutanol, you ask? I hadn't heard of it either, so I did a little checking. It seems that it's the latest miracle fuel. It can be used like ethanol, but it doesn't separate like ethanol does, so it can be mixed with gasoline earlier in the process and transported through pipelines. It also contains more energy than ethanol, closer to the levels in gasoline, so it doesn't deteriorate mileage as much. It apparently can be made from any plant matter. And the stuff is compatible with current engines and fuel distribution equipment. Butanol has previously been used as an industrial solvent and is one of the many byproducts of petroleum distillation. Until recently, biobutanol has been too expensive to make in sufficient quantities as fuel or as a fuel additive. I'm sure there are other drawbacks, like its highly corrosive qualities, but so far the websites seem to be concentrating on the miracle that is biobutanol. See Green Car Congress, BP, and Butyfuel, LLC for more info.

In the last edition of *The Hybrid Report*, the news was about hydrogen vehicles and little was good. This time, we ran across an article in *The Jerusalem Post* about the European Union's (EU) drive to speed hydrogen vehicle development. The EU estimates that hydrogen vehicles could reduce highway oil consumption by 40% by 2050. However, development of hydrogen vehicles still presents problems. In the EU, one of the big problems is standardization of licensing, permitting, and roadworthiness (Syrquin, 2008).

According to *The Wall Street Journal*, natural-gas seems to be the alternative energy of choice in many developing economies. In Thailand, for example, about 6,000 cars per month have been converted to natural-gas for about $1,700 each. Other countries that have a large number of natural-gas vehicles are Pakistan, Argentina, and Brazil, with 1.5 million vehicles each (Barta, 2008), about as many trucks registered in Washington State.

Safety is just one concern among many issues having to do with the expanding use of ethanol. *The Washington Post* writes about the issues which range from transporting flammable liquids through residential areas to the inability of traditional fire-fighting foams to put out ethanol fires. Ethanol mixes easily with water, so traditional foam is useless in fighting ethanol fires. *The Post* also says many communities have not developed emergency plans to deal with ethanol disasters. The paper claims that this is not "what if" planning as several ethanol transportation fires have already occurred with less than favorable results (Laris, 2008).

A Bellingham man has achieved 113 miles per gallon in a car he built at home, *The New York Times* reports. The car, called an Avion, was built in 1986. It got 103 mpg then. It's been updated and gets better mileage. Craig Henderson, the builder, uses a standard diesel engine taken from a Smartcar in his fiberglass Avion. When he feels the need for speed, he changes to a different engine. Mr. Henderson is planning a hybrid version of the car which, he says, should get around 200 mpg (Kurczewski, 2008).

ASSORTED TECHNOLOGY

The Tacoma *News Tribune* highlighted the trials several Puget Sounders go through to keep their all-electric vehicles charged. It seems that charging stations aren't growing quite as rapidly as the popularity of the vehicles, so electric car drivers need to have some plans about how they will recharge on their journeys. Several Puget Sound municipalities and agencies are attempting to accommodate these drivers, as are some businesses (Le, 2008).

The economic slowdown is affecting electric automaker Tesla, *MSNBC* (2008) reports. Tesla is experiencing financing problems and has had to delay development on its "cheaper" $60,000 electric car. Tesla will concentrate its efforts on the $100,000 Roadster.

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